

Regional Concerns Meeting

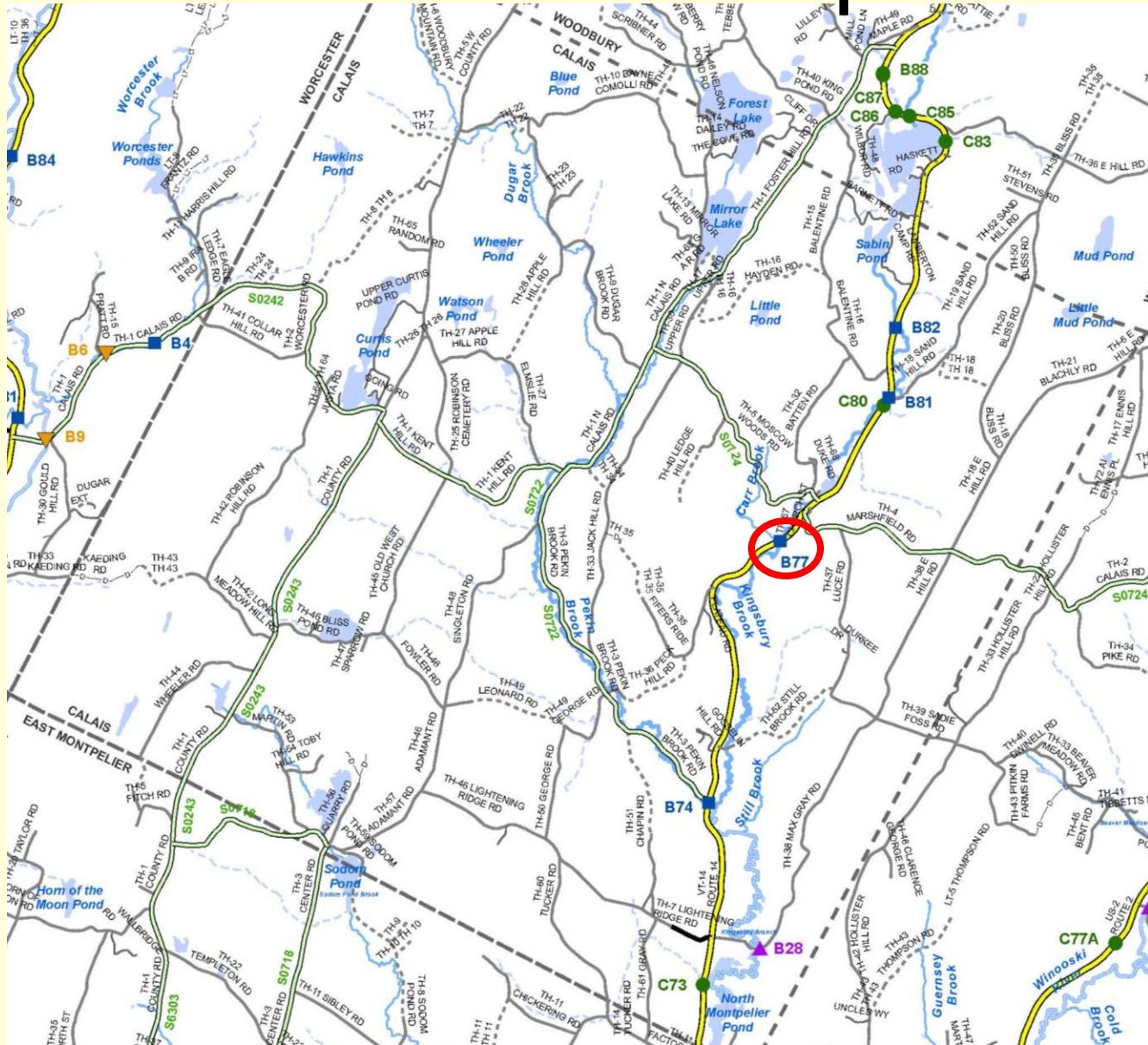
for

Calais VT 14, Bridge 77 over Kingsbury Branch

This Presentation is part 2 of 3 parts that will be given at the Regional Concerns Meeting.
This Presentation contains a discussion of bridge 77.

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Location Map



Bridge 77 - Project Background

- Existing bridge is a single span concrete T-beam bridge
- Span length = 38'
- Bridge width = 34'
- Built in **1928 (85 years old) – reconstructed in 1977**
- Posted speed limit = 50 mph
- **Priority 35** in the State Bridge Program-

EXISTING BRIDGE DEFICIENCIES – B77

Inspection Report Information (Based on a scale of 9)

Bridge Deck Rating	5 Fair
Superstructure Rating	5 Fair
Substructure Rating	7 Good

Deficiencies

- Structural Capacity/Condition of the Bridge Deck and T-beams
- Bridge railing does not meet the current standard
- Substandard geometrics for vertical curve and stopping sight distance
- The bridge does not meet the hydraulic standard

Bridge Looking South



Looking Upstream



Abutment

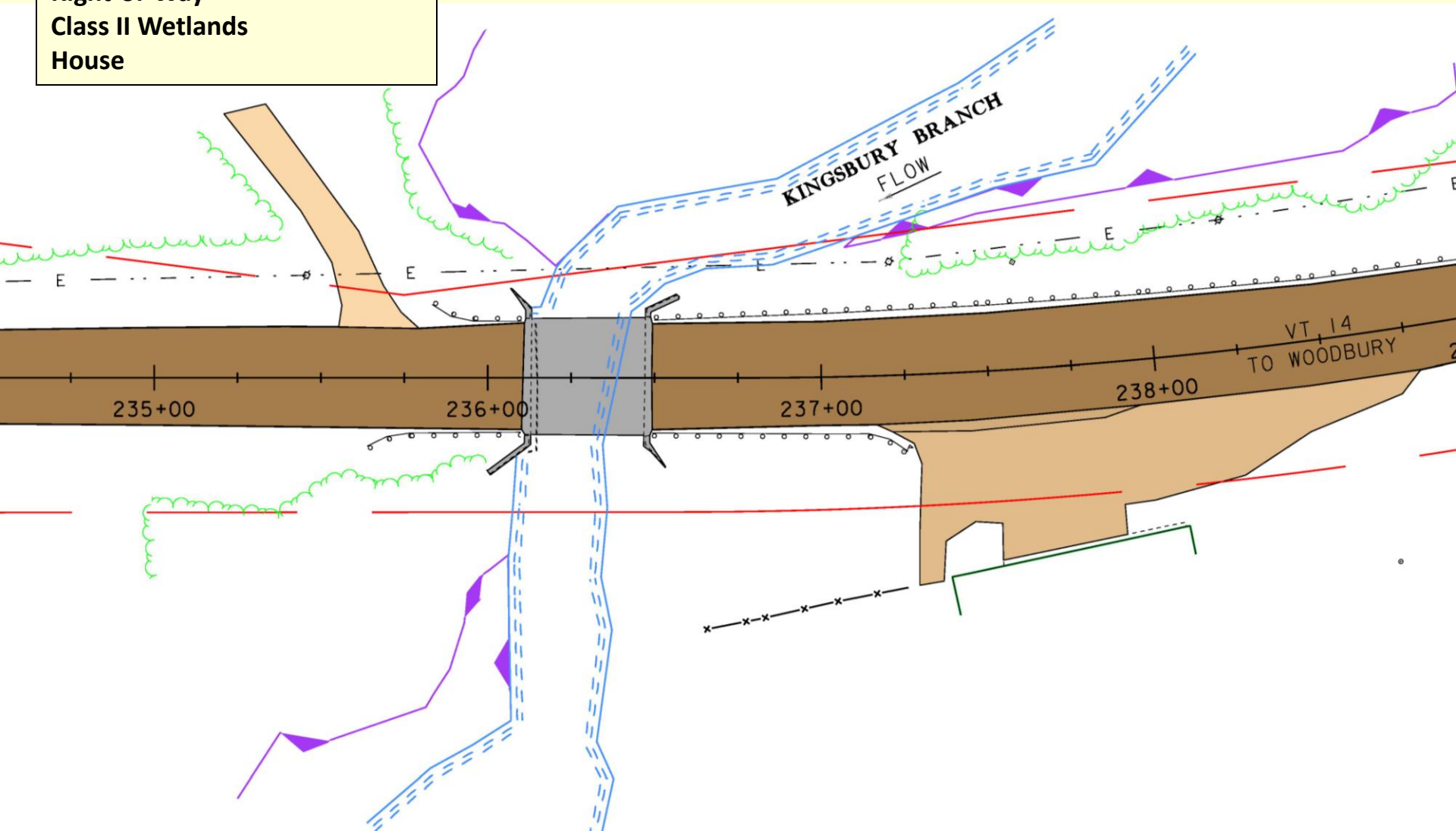


Abutment & Underside of Deck



Layout Showing Constraints

Constraints
Right-of-Way
Class II Wetlands
House



Alternatives Considered

Note that several alternatives were considered in the Scoping Report that did not warrant future consideration so are not included in this presentation

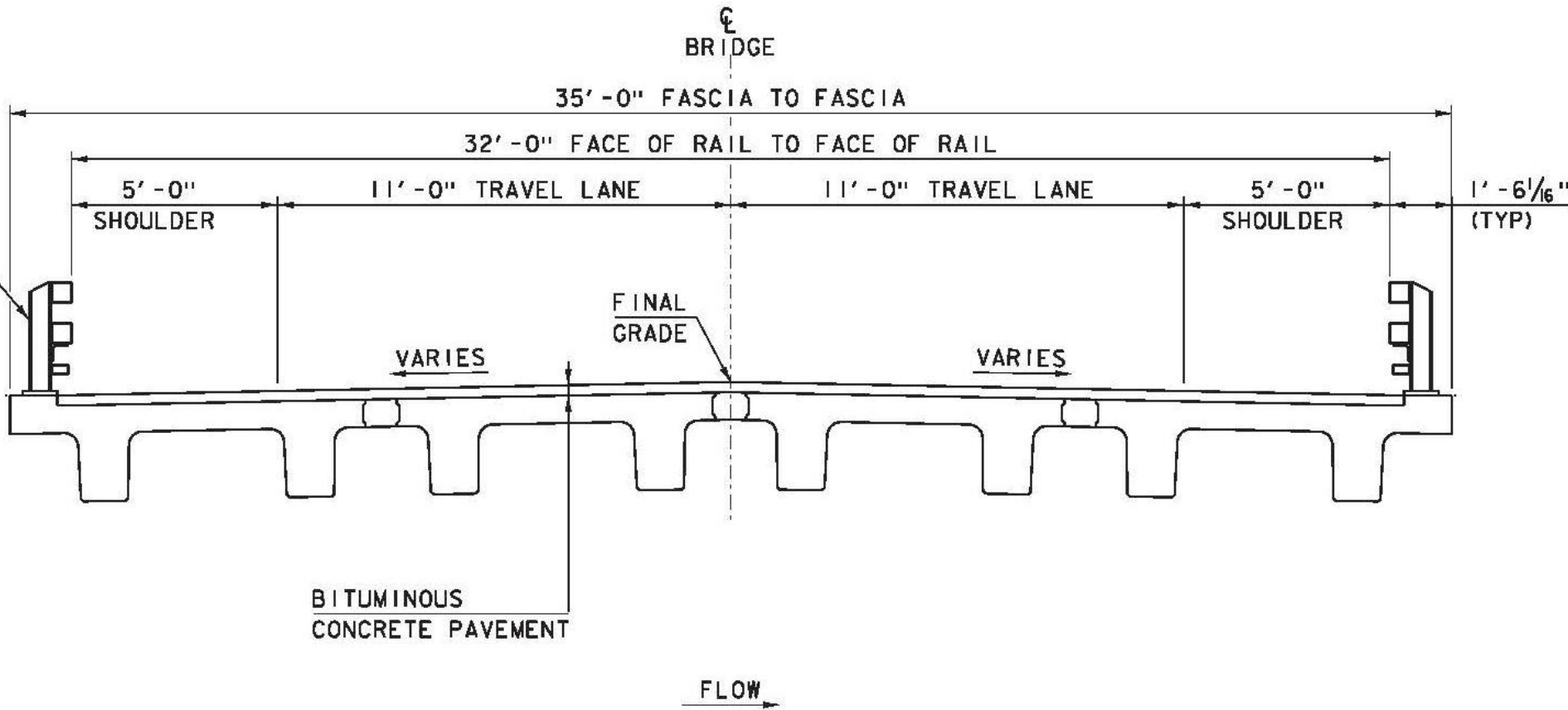
- Superstructure Replacement
- Full Bridge Replacement

Note that the method to maintain traffic will be addressed later

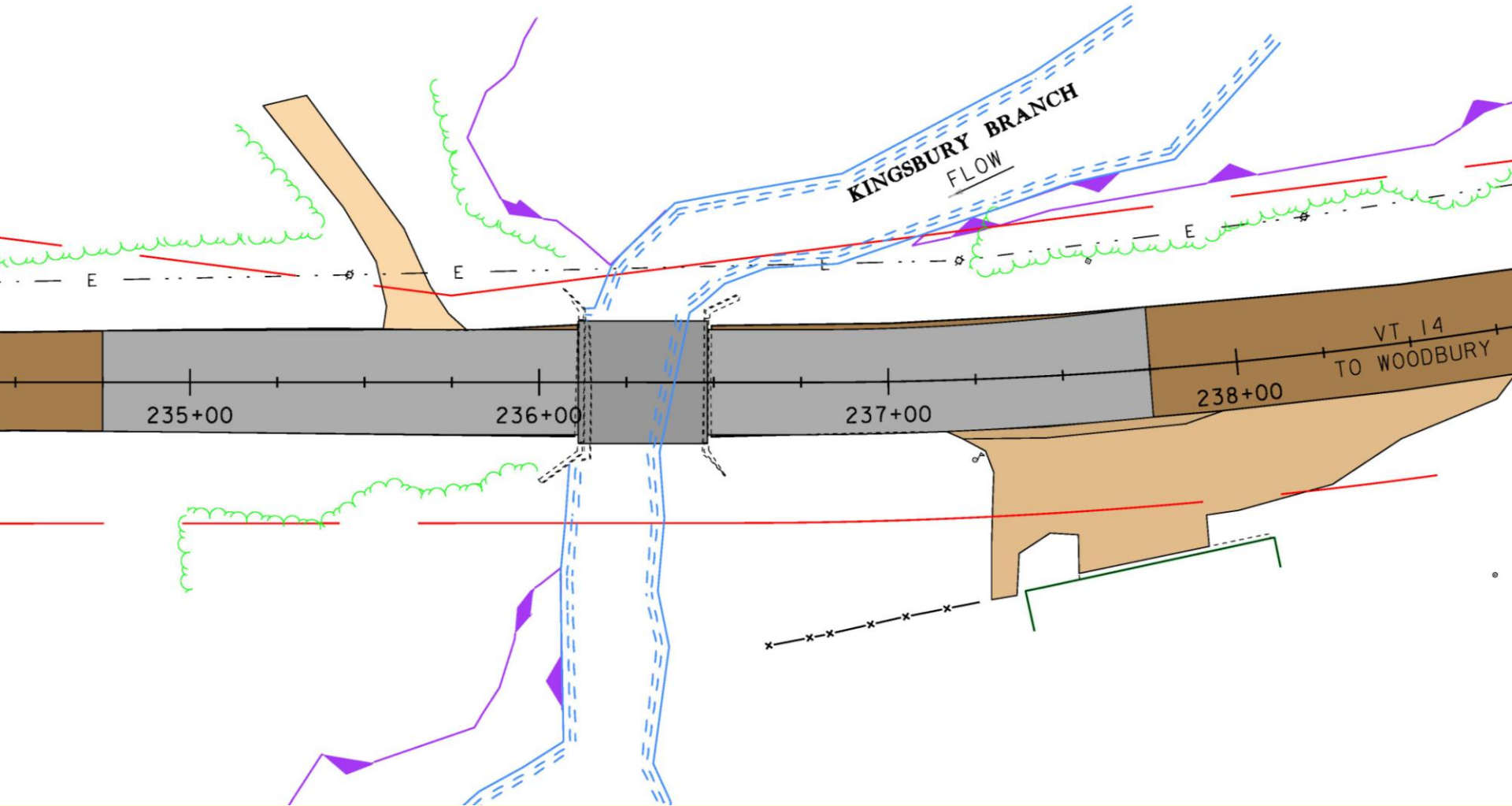
Superstructure Replacement

- Use 11' lanes and 5' shoulders (32' rail-rail width)
- Keep existing abutments
- Maintain existing centerline of road
- Maintain vertical grade of road
- Structural deficiencies would partially be addressed
- No improvement to hydraulic capacity
- Predicted 50 year life expectancy-

Proposed Bridge Typical



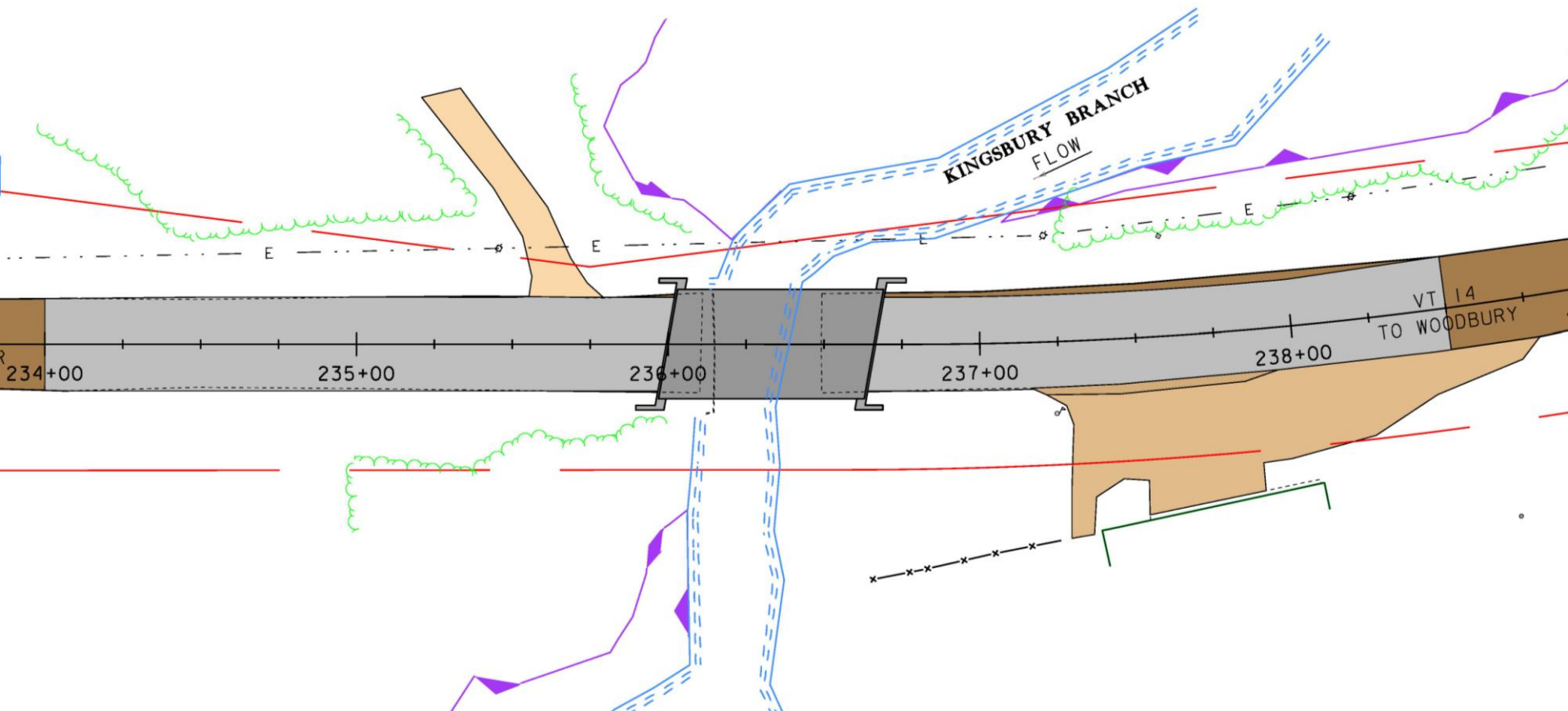
Layout – Superstructure Replacement



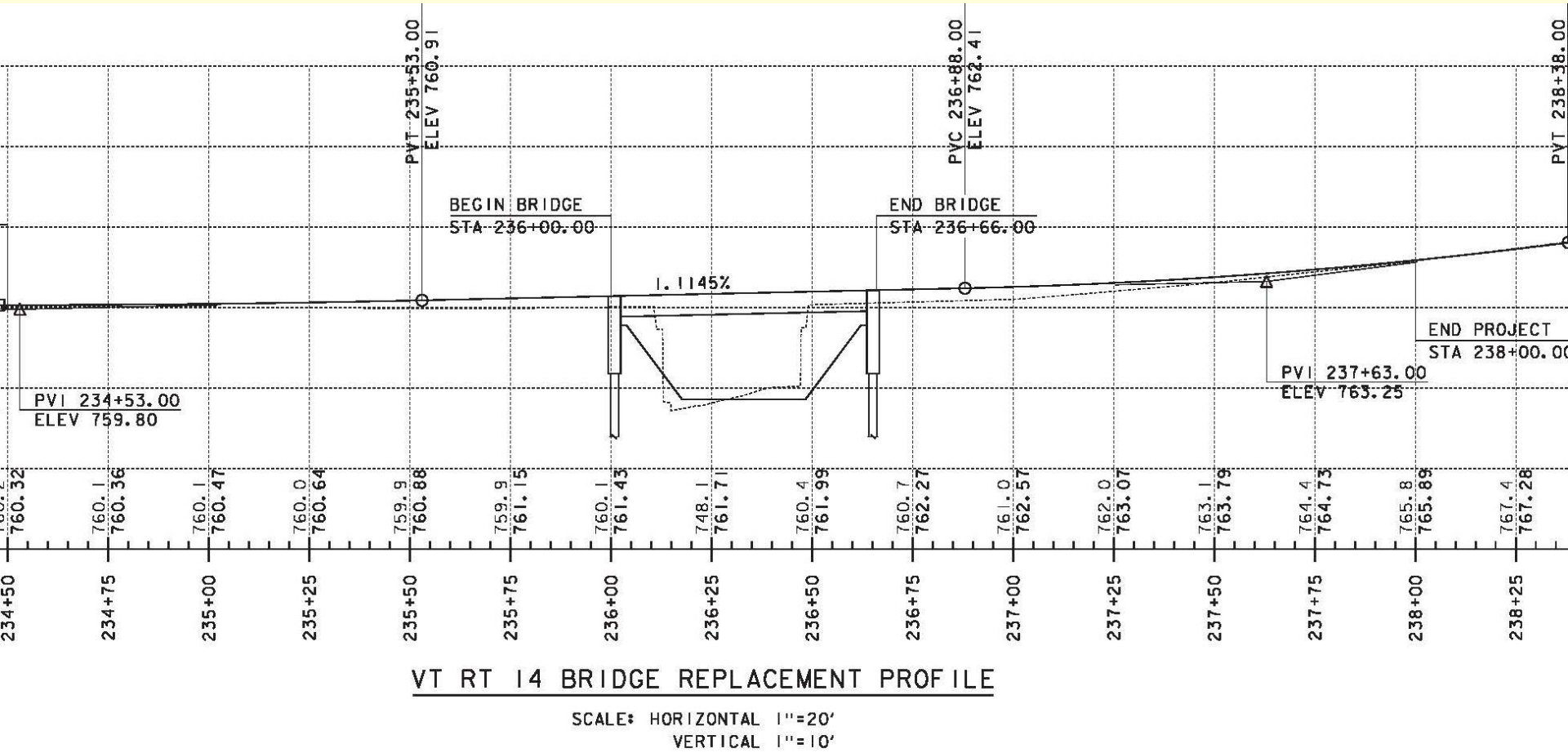
Full Bridge Replacement

- Use 11' lanes and 5' shoulders (32' rail-rail width)
- Increase span to 66 feet
- Maintain existing centerline of road
- Raise vertical grade to address hydraulic capacity
- Structural deficiencies would be addressed
- Predicted 80 year life expectancy-

Layout – Full Bridge Replacement



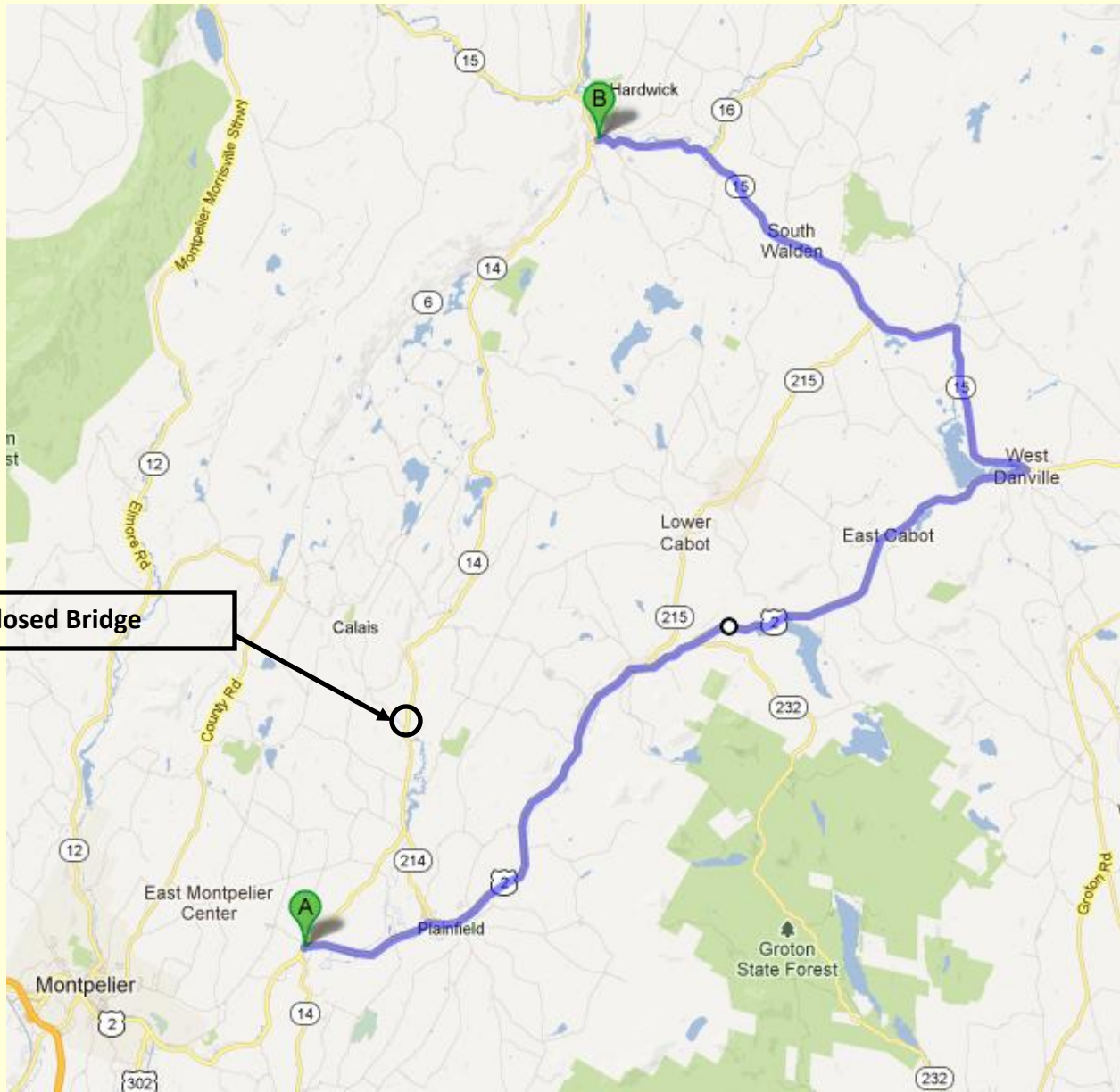
Profile – Full Bridge Replacement



Methods to Maintain Traffic

- Off-site Detour
- Phased Construction
- Temporary Bridge on east side of VT 100

Off Site Detour Option



Mileage Summary

A-B Thru = 19 miles

A-B Detour = 32 miles

Added Miles = 13 miles

End-End Dist. = 51 miles

Major Factors

Traffic Volume = 3,100

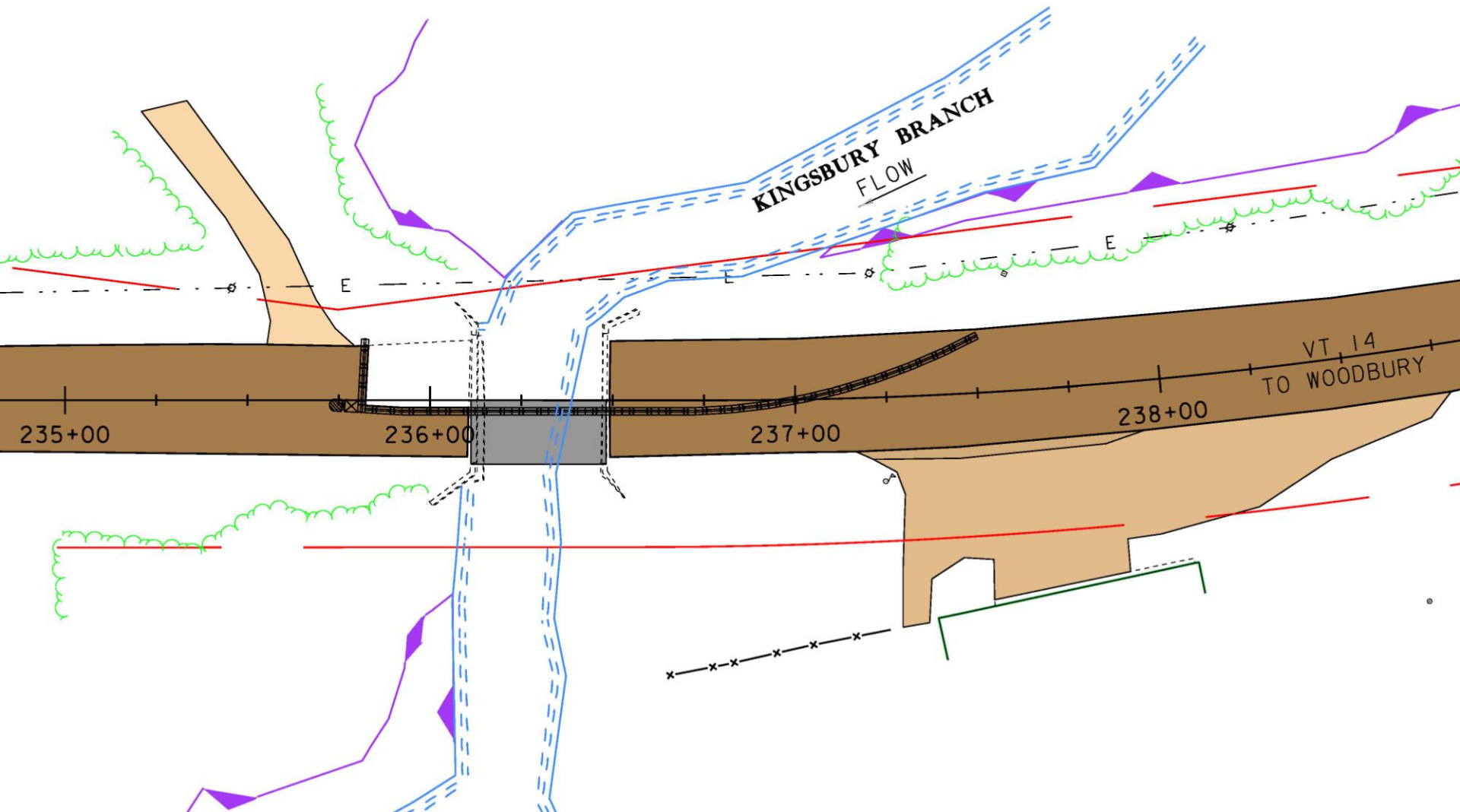
Added Miles = 13 miles

Duration = 2-4 weeks

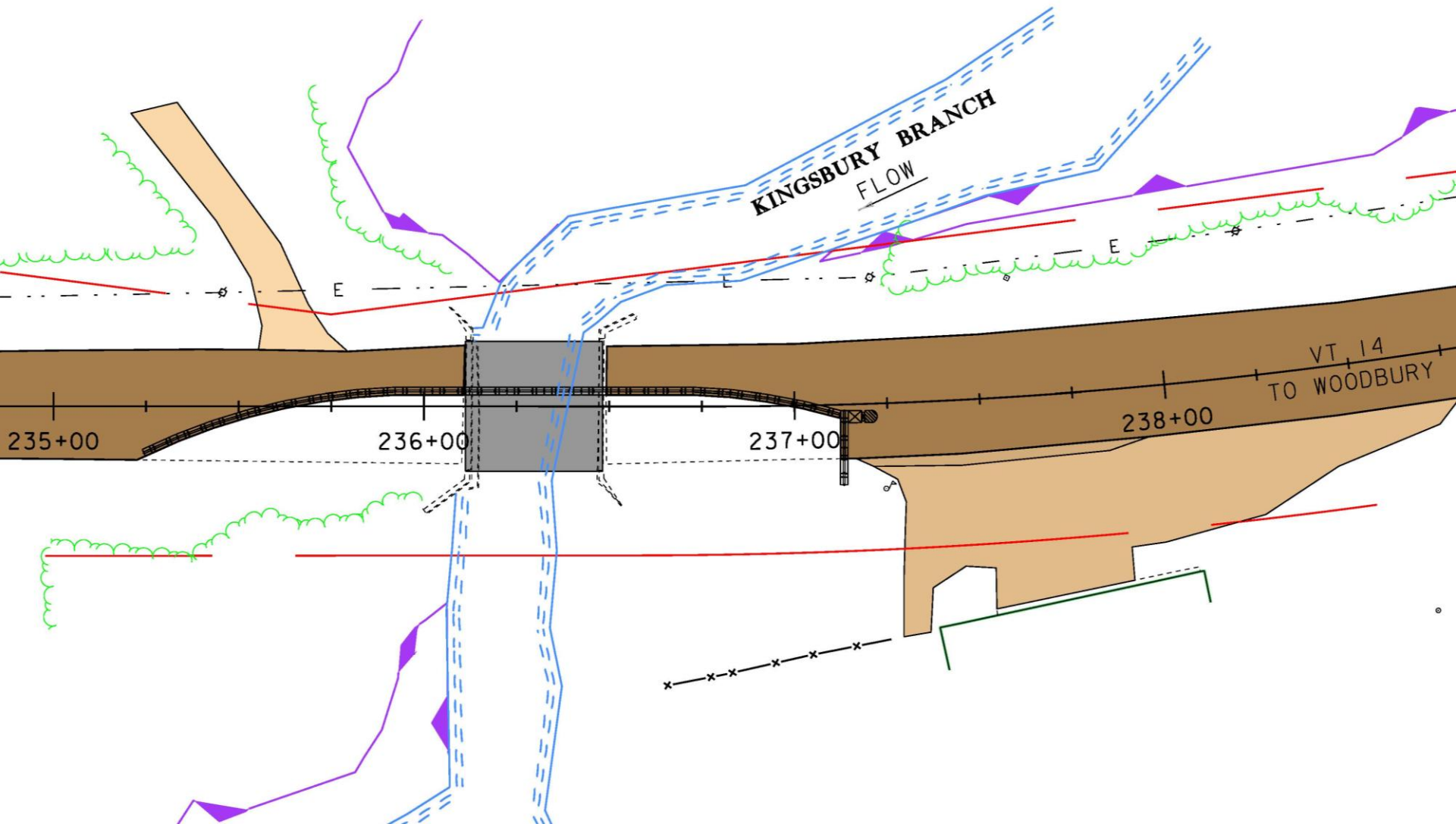
Phased Construction Option

- Build half new bridge while traffic is on half of old bridge
- One-Way alternating traffic with lights
- Queue lengths and queue times can be inconvenient
- Access to side drives/buildings needs to be considered
- Relatively long construction duration
- Workers & motorists in close proximity
- Can usually be done without ROW acquisition-

Phase 1 – Superstructure Replacement



Phase 2– Superstructure Replacement



Alternatives Matrix – Bridge 77

	Superstructure Replacement w/ Temp Bridge	Superstructure Replacement w/ Phased		Complete Replacement w/ Temp Bridge	Complete Replacement w/ Phased
Maintenance of Traffic	\$150,000	\$40,000		\$150,000	\$40,000
Construction w/ CE + Contingencies	\$568,100	\$438,100		\$1,583,400	\$1,505,400
Preliminary Engineering	\$153,000	\$107,900		\$341,100	\$266,400
Right of Way	\$61,000	\$0		\$61,600	\$38,200
Total Cost	\$782,100	\$546,000		\$1,985,500	\$1,810,000
Project Development Duration	4 years	2 years		4 years	3 years
Construction Duration	16 months	6 months		18 months	8 months
Mobility Impacts	48 weeks	8 weeks		56 weeks	12 weeks

Conclusion and Recommendation

Superstructure replacement while maintaining traffic using phased construction.

The primary reasons for this recommendation are:

- Addresses structural deficiencies
- Short project delivery time
- Takes advantage of remaining life in abutments
- Predicted 50 year solution
- Short-term bridge closure not appropriate for the volume of traffic, detour distance and duration
- Temporary bridge not appropriate due to increased impacts and longer project delivery time-

Questions



Direct any questions to:

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